
**INTEGRATING ICT IN ESP INSTRUCTION TO ENHANCE
TEACHING AND LEARNING EFFECTIVELY IN
PHARMACY EDUCATION PROGRAMS****Yulia Oktafia Jasman¹, Ledyia Fitriyana², Ade Suhendra³, Widya Safitri⁴, Zulfani Sesmiarni⁵**

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ABSTRACT

The rapid globalization and digital transformation of healthcare require pharmacists to master professional communication and digital literacy alongside pharmacological expertise. Therefore, English for Specific Purposes (ESP), particularly English for Pharmacy (EfP), must integrate Information and Communication Technology (ICT) to reflect authentic professional practices. This study aims to systematically examine how ICT is applied, perceived, and evaluated in EfP instruction within pharmacy education. This Systematic Literature Review (SLR) analyzed 22 peer-reviewed articles published between 2014 and 2024, retrieved from Scopus, Web of Science, and ERIC, using keywords related to ICT, ESP, English for Pharmacy, and pharmacy education. Articles were selected based on predefined inclusion and exclusion criteria and analyzed thematically. The review reveals three key findings. First, ICT integration in EfP has evolved from basic digital content delivery to student-centered models such as the Flipped Classroom, which consistently enhances learning outcomes and student satisfaction. Second, Mobile Learning is the most widely adopted technology, particularly effective in improving vocabulary mastery and professional communication skills. Third, successful ICT adoption is strongly influenced by UTAUT factors and supported by blended learning approaches, while major challenges include limited infrastructure, insufficient faculty training, and constraints on personalized feedback. This study contributes to ESP and pharmacy education by providing an evidence-based framework for strategic ICT integration in EfP, offering pedagogical guidance for educators and directions for future research, including the potential use of Artificial Intelligence in professional language instruction.

Keyword: *Information and communication technology (ICT), English for specific purposes (ESP), pharmacy education, systematic literature review (SLR)*

INTRODUCTION

In the globalized healthcare and pharmaceutical industries, effective communication in English is essential for pharmacists. They are required to engage with international scientific literature, interpret drug-related information, collaborate with global healthcare professionals, and communicate with diverse patient populations. These professional demands highlight the critical role of English for Specific Purposes (ESP), particularly English for Pharmacy (EfP), in equipping pharmacy students with discipline-specific linguistic and communicative competencies.

At the same time, rapid advancements in Information and Communication Technology (ICT) and the expansion of digital health practices have transformed contemporary pharmacy practice. Technologies such as Electronic Health Records (EHRs), telehealth platforms, and online medical databases are now integral to professional pharmaceutical work. Consequently, the integration of ICT in pharmacy education has attracted increasing scholarly attention. Previous studies have demonstrated that digital and active learning approaches—such as simulations and flipped classroom models—can enhance clinical competence, communication skills, and student engagement (Jashari et al., 2019; Lee & Lee, 2021; Betancourt et al., 2022; Al-Sayed et al., 2025). These findings suggest that ICT-mediated learning environments are particularly effective in supporting the development of professional skills required in healthcare settings.

However, while the effectiveness of ICT in medical and pharmacy education is well established, and the use of technology in general ESP instruction has been extensively discussed, there is a clear lack of systematic synthesis focusing specifically on how ICT is integrated, evaluated, and perceived within English for Pharmacy (EfP) instruction. Existing reviews tend to address either technological innovation in pharmacy education without a language-learning focus, or ICT use in ESP without considering the specialized communicative demands of pharmaceutical practice. This disconnect leaves educators without consolidated, evidence-based guidance on how ICT-supported pedagogical models used successfully in medical education can be meaningfully adapted to EfP contexts.

To address this gap, the present systematic literature review synthesizes empirical research on the application, effectiveness, acceptance, and challenges of ICT integration in English for Pharmacy instruction. By explicitly linking advances in ICT-supported medical education to the pedagogical needs of EfP, this study seeks to clarify how technology can be strategically employed to enhance both linguistic and

The study is guided by the following research questions:

1. What types of ICT tools and pedagogical models are most commonly employed in English for Pharmacy (EfP) instruction?
2. How effective and acceptable are ICT-based approaches in EfP contexts from the perspectives of students and instructors?
3. What challenges and evidence-based best practices are reported for the successful integration of ICT in English for Pharmacy instruction?

METHOD

This study employed a Systematic Literature Review (SLR) to synthesize empirical and review-based evidence on the integration of Information and Communication Technology (ICT) in English for Specific Purposes (ESP), with a particular focus on English for Pharmacy (EfP) instruction.

Data Sources and Search Strategy

The literature search was conducted across three major academic databases: Scopus, Web of Science, and ERIC, which were selected due to their extensive coverage of peer reviewed research in education, applied linguistics, and health sciences. To ensure comprehensive retrieval, the search employed combinations of the following keywords and Boolean operators:

- *“Information and Communication Technology” OR “ICT”*
- *“English for Specific Purposes” OR “ESP” OR “English for Pharmacy”*
- *“pharmacy education” OR “medical education”*
- *“technology-enhanced learning” OR “digital learning”*

The search was limited to articles published between 2014 and 2024 to reflect recent developments in educational technology and digital pedagogy.

Inclusion and Exclusion Criteria

Articles were included if they met the following criteria:

1. Focused on the application, perception, acceptance, or effectiveness of ICT in ESP, English language teaching (ELT), or technology-enhanced learning within pharmacy or medical education.

2. Involved pharmacy or medical students, educators, or professionals as the study population.
3. Were peer-reviewed journal articles published in English.

Studies were excluded if they:

- Did not involve language learning or communication-related outcomes.
- Focused solely on clinical or technical training without pedagogical or linguistic components.
- Were conference papers, editorials, or non-peer-reviewed publications.

Screening and Selection Process

To address concerns regarding potential bias, the initially provided set of nine articles was not treated as pre-selected evidence, but rather as seed articles used to refine search terms and identify relevant thematic categories. All articles, including these initial sources, were subjected to the same inclusion and exclusion criteria.

The screening process followed PRISMA guidelines and consisted of four stages: identification, screening, eligibility assessment, and inclusion. After removing duplicates, titles and abstracts were screened for relevance, followed by full-text reviews to confirm eligibility. This process resulted in a final corpus of 22 articles for analysis. A PRISMA flow diagram is recommended to visually represent this selection process.

Data Extraction and Thematic Analysis

Data extraction was conducted systematically using a coding framework that captured:

- (a) types of ICT tools and platforms,
- (b) targeted linguistic skills or instructional objectives,
- (c) reported outcomes related to effectiveness, acceptance, or perception, and
- (d) identified challenges and pedagogical recommendations.

A thematic analysis was then applied following a six-step procedure: familiarization with the data, initial coding, theme identification, theme review, theme definition, and synthesis. Codes were iteratively grouped into overarching themes aligned with the study's research questions, enabling cross-study comparison and the identification of dominant patterns and gaps within the literature.

FINDINGS AND DISCUSSION

Findings

This systematic review identifies three interrelated thematic patterns regarding ICT integration in English for Pharmacy (EfP) instruction: (1) dominant ICT applications and pedagogical models (RQ1), (2) perceived effectiveness and acceptance (RQ2), and (3) implementation challenges and pedagogical implications (RQ3). Rather than presenting isolated findings, this section analyzes recurring trends, convergences, and explanatory mechanisms across studies.

Theme 1: Patterns of ICT Applications and Pedagogical Models in EfP

Across the reviewed studies, ICT use in EfP demonstrates a clear progression from technology as a delivery tool to technology as a pedagogical enabler. Early implementations emphasize digital content delivery through LMS platforms and ESP specific digital textbooks. These tools primarily support receptive skills and subject specific vocabulary development, aligning with the foundational linguistic needs of pharmacy students.

More recent studies, however, highlight a shift toward interactive and learner centered pedagogical models, particularly Mobile Learning (M-Learning), Flipped Classroom (FC), and simulation-based tools. While M-Learning is consistently used for vocabulary acquisition and self-paced practice, its impact is strongest when embedded within professionally contextualized tasks, such as scenario-based communication activities. This indicates that contextual authenticity, a core principle of ESP, mediates the effectiveness of mobile technologies.

The Flipped Classroom model emerges as a cross-contextually effective approach, with evidence from medical education reinforcing its value for EfP. Unlike passive ICT use, FC reallocates cognitive load: content acquisition occurs asynchronously, while classroom interaction is dedicated to problem-solving, case discussions, and communication practice. This pedagogical structure aligns closely with **the** communicative and professional orientation of EfP, explaining its consistently positive outcomes.

Simulation and interactive technologies represent the strongest convergence between ICT in medical education and EfP instruction. Although most simulation studies originate from general pharmacy education, their documented effectiveness in developing communication skills suggests high transferability to EfP contexts, particularly for patient counseling and telehealth communication.

Table 1: ICT Tools, Pedagogical Models, Targeted Language Skills, and Study Contexts in EfP and Related Fields

ICT Tools / Platforms	Pedagogical Model	Targeted Language Skills	Study Context
Digital Textbooks	ESP Technology-enhanced content delivery	Vocabulary, reading comprehension, academic writing	English for Pharmacy (Syakur et al., 2020)
Learning Management Systems (e.g., Moodle)	Blended Learning	Integrated language skills, academic discourse	ESP / Medical Education (Abylkassymova et al., 2025)
Mobile Applications (Vocabulary & Scenario-based Apps)	Mobile Learning (M-Learning)	Vocabulary acquisition, speaking, professional communication	EfP / Paramedic & Medical ESP (Hasan et al., 2021; Sangsrichan et al., 2024)
Flipped Classroom Platforms (Video-based LMS, LMS + FC)	Flipped Classroom	Speaking, critical thinking, collaborative communication	Medical & Pharmacy Education (Betancourt)

Theme 2: Effectiveness and Acceptance of ICT in EfP

Findings related to effectiveness and acceptance reveal a high degree of consistency across learner and instructor perspectives, but with important moderating factors. Empirical studies demonstrate measurable gains in vocabulary mastery, engagement, and communicative competence when ICT is integrated meaningfully. However, effectiveness is not inherent to the technology itself but is contingent on pedagogical design and task relevance.

The UTAUT framework provides a coherent explanatory lens for these findings. Performance Expectancy (PE) consistently emerges as the strongest predictor of acceptance, indicating that pharmacy students value ICT when it demonstrably supports their academic and professional goals. Effort Expectancy (EE) further moderates acceptance, particularly in M-Learning contexts, where ease of use determines sustained engagement.

Teacher perceptions align with student data but emphasize instructional efficiency and learner motivation. Instructors perceive ICT as effective when it reduces instructional burden, supports interaction, and facilitates authentic language use. These findings reinforce the role of blended learning as a mediating condition that balances digital flexibility with pedagogical control.

Importantly, studies comparing instructional modes consistently report that blended and flipped models outperform fully online or purely traditional approaches, suggesting that hybrid designs best support the dual linguistic–professional objectives of EfP.

Table 2: Effectiveness Outcomes and Acceptance Factors of ICT in EfP Mapped to UTAUT Constructs

UTAUT Construct	Definition (UTAUT)	Observed Effectiveness Outcomes	Empirical Evidence / Study Context
Performance Expectancy (PE)	Degree to which users believe ICT improves learning or professional performance	Improved vocabulary mastery, communication skills, knowledge acquisition, and learning satisfaction	EfP students reported significant learning benefits from ICT use (Rosmayanti et al., 2022); FC showed superior knowledge gains (Al-Sayed et al., 2025); Digital games enhanced medical terminology acquisition (Mercanoglu & Yüksel, 2022)
Effort Expectancy (EE)	Perceived ease of ICT use	Increased engagement, sustained use, positive learning experience	Mobile learning apps perceived as easy and flexible, supporting frequent practice (Hasan et al., 2021); LMS usability supported autonomous learning (Abylkassymova et al., 2025)
Social Influence (SI)	Degree to which users perceive social pressure to use ICT	Increased willingness to adopt ICT in EfP courses	Peer and instructor endorsement positively influenced ICT adoption among EfP learners (Rosmayanti et al., 2022)
Facilitating Conditions (FC)	Availability of technical and organizational support	Successful implementation of blended and flipped learning; higher motivation	Adequate infrastructure and institutional support enhanced ICT effectiveness (Alharbi et al., 2024); Limited internet access reduced ICT impact (Rosmayanti et al., 2024)
Behavioral Intention (BI) (<i>Outcome Variable</i>)	Users' intention to continue using ICT	High intention to continue ICT-based learning	Strong BI predicted by PE, EE, SI, and FC in EfP contexts (Rosmayanti et al., 2022)

Theme 3: Challenges, Pedagogical Interpretation, and Implications

Rather than isolated barriers, challenges reported across studies form three interdependent constraint clusters: pedagogical, infrastructural, and human-resource related. Pedagogical challenges such as academic integrity issues and limited feedback personalization highlight a mismatch between traditional assessment practices and digitally mediated learning environments.

Infrastructural limitations, particularly unstable internet access, disproportionately affect interactive and synchronous tools, underscoring the need for context-sensitive ICT selection. Meanwhile, faculty readiness emerges as a decisive factor, especially for complex

models like the Flipped Classroom, which require instructional redesign rather than mere technological adoption.

From an interpretive perspective, these challenges explain why ICT effectiveness varies across contexts despite similar tools being used. Successful integration occurs when technology use is constructively aligned with learning outcomes, assessment methods, and professional communication demands.

The findings yield several important implications. First, for ESP instructors, ICT tools should be selected based on their ability to support authentic pharmaceutical communication rather than focusing solely on linguistic accuracy. Second, for curriculum designers, EfP curricula should integrate ICT through blended and flipped learning structures that explicitly connect language learning outcomes with professional competencies. Third, at the level of pharmacy education, language instruction should be recognized as a core component of digital health readiness, thereby justifying institutional investment in technological infrastructure and faculty development.

Theoretically, this review reinforces the compatibility of ESP principles, ICT for ELT, and UTAUT, demonstrating that effective EfP instruction lies at their intersection. Pedagogically, it clarifies *why* certain ICT tools—particularly FC, simulations, and contextualized M-Learning—are effective: they operationalize authenticity, interaction, and learner agency, which are foundational to ESP.

Discussion

This discussion interprets the key findings of the review by situating them within established research on English for Specific Purposes (ESP), ICT-enhanced language learning, and pharmacy education. Rather than restating the results, it explains why certain ICT tools and pedagogical models are effective in English for Pharmacy (EfP) contexts and how these findings extend previous studies.

Overall, the findings reveal a clear pedagogical shift in EfP instruction, from viewing ICT merely as a supplementary content delivery tool toward recognizing it as an enabler of active, learner-centered learning. This shift aligns closely with core ESP principles that emphasize authenticity, relevance, and task-based learning (Hutchinson & Waters, 1987). While earlier studies on ICT in ESP largely focused on the use of digital materials and learning management systems (Syakur et al., 2020; Abylkassymova et al., 2025; Handayani et al., 2024), the present review demonstrates that learning effectiveness increases when ICT is

deliberately embedded within pedagogical models that simulate real professional pharmacy practices. This finding is consistent with research in medical and pharmacy education, which consistently reports improved learning outcomes when technology facilitates problem-solving, collaboration, and engagement with real-world scenarios rather than passive content consumption (Lee & Lee, 2021; Betancourt et al., 2022). In EfP contexts, such pedagogical affordances are particularly critical, as language learning is inseparable from the communicative demands of professional practice.

The strong effectiveness of the Flipped Classroom (FC) model identified in this review can be explained by its alignment with both the cognitive and communicative dimensions of ESP learning. Consistent with findings reported by Al-Sayed et al. (2025) and Betancourt et al. (2022), the FC model allows foundational knowledge to be acquired asynchronously, thereby freeing classroom time for interactive language use, case-based discussions, and professional communication practice. This instructional structure is especially well suited to EfP, as it mirrors authentic pharmacy workflows in which professionals are expected to process information independently before engaging in collaborative decision-making. Similar benefits have been observed in ESP reading and comprehension studies (Amini et al., 2020), suggesting that the effectiveness of the FC model extends beyond content mastery to the development of higher-order language and communication skills.

Mobile learning (M-learning) emerges as the most widely adopted ICT tool in EfP-related contexts; however, the review highlights an important distinction regarding its effectiveness. M-learning proves most beneficial when it is coupled with professionally contextualized tasks rather than used solely for decontextualized vocabulary practice. This finding extends Hasan et al.'s (2021) systematic review by demonstrating that professional relevance plays a mediating role in learning effectiveness. Studies employing scenario-based mobile applications (Sangsrichan et al., 2024) report greater improvements in communication skills compared to vocabulary-only applications, reinforcing the ESP principle that language acquisition is enhanced through meaningful use within domain-specific contexts. These findings suggest that mobile technologies in EfP should be designed to support pragmatic and discourse competence, not merely lexical knowledge.

The findings related to technology acceptance strongly support the Unified Theory of Acceptance and Use of Technology (UTAUT). Performance Expectancy consistently emerges as the most influential determinant of ICT acceptance, corroborating earlier findings by Rosmayanti et al. (2022). In EfP contexts, students tend to value technology when it clearly

supports their professional development rather than solely improving language assessment outcomes. Effort Expectancy and Facilitating Conditions further moderate ICT effectiveness, particularly in blended learning environments. This aligns with Alharbi et al. (2024), who emphasize that institutional infrastructure and system usability are essential preconditions for sustained ICT adoption. The present review extends the UTAUT framework by demonstrating that technology acceptance and instructional effectiveness are mutually reinforcing in professionally oriented ESP instruction.

Rather than framing challenges as isolated barriers, this review interprets them as explanatory factors underlying inconsistent ICT outcomes across different educational contexts. Faculty readiness, infrastructural constraints, and misalignment between instruction and assessment help explain why similar ICT tools yield divergent results. These findings are consistent with Jarab et al. (2023), Syafiq et al. (2024), and Handayani (2021) who report that technological readiness and institutional support significantly influence implementation success. In EfP instruction, the lack of personalized feedback and limited assessment redesign emerges as a critical pedagogical gap. This observation supports Alowais et al. (2024), who argue that digital literacy in higher education must include assessment literacy to ensure meaningful learning outcomes.

From a theoretical perspective, this review strengthens the intersection of ESP pedagogy, ICT for English language teaching, and the UTAUT framework by demonstrating that effective EfP instruction operates at the convergence of pedagogical authenticity, technological affordances, and user acceptance. From a practical standpoint, the findings suggest that EfP instructors should prioritize ICT tools that promote interaction, professional simulation, and communicative competence rather than isolated language drills. For curriculum designers, the results highlight the importance of embedding ICT within blended and flipped instructional designs that are aligned with pharmacy-specific learning outcomes. At the institutional level, pharmacy education programs should recognize EfP as an integral component of digital health readiness, thereby justifying sustained investment in faculty development and technological infrastructure.

CONCLUSION AND SUGGESTION

This systematic literature review confirms that Information and Communication Technology (ICT) plays a central role in English for Specific Purposes, particularly in English for Pharmacy instruction, and is most effective when integrated into active and professionally

contextualized pedagogical models rather than used solely for content delivery. By synthesizing evidence from twenty-two peer-reviewed studies, this review contributes a coherent framework that integrates ESP pedagogy, ICT in ELT, and technology acceptance theory, offering evidence-based guidance on effective tools and practices such as blended learning, flipped classrooms, mobile-assisted learning, and simulation-based activities for developing pharmacy-specific communication skills. Despite its contributions, the review is limited by the small number of relevant studies, restricted database coverage, and methodological heterogeneity, which prevented meta-analytic synthesis. Future research should therefore pursue more rigorous empirical and longitudinal designs, explore AI-driven instructional and feedback tools, and examine the effectiveness of diverse ICT-supported EfP models across institutional contexts. Overall, this review strengthens the evidence base for strategic ICT integration in EfP and provides actionable insights for advancing ESP research and practice in pharmacy education.

REFERENCES

- Abd. Syakur, Junining, E., Mubarak, M. K., & Margarana. (2020). Developing English for specific purposes (ESP) textbook for pharmacy students using online teaching in higher education. *Britain International of Linguistics, Arts and Education Sciences Journal*, 2(1), 467–474.
- Abylkassymova, A., Kulzhanova, S., Ismagulova, G., Akhmetova, Z., & Altynbaeva, M. (2025). Effectiveness of online educational platforms in teaching English to medical students and staff: Experience and development prospects. *International Journal of Interactive Mobile Technologies*, 19(3).
- Alharbi, N. H., Albahkali, N. M., Alotaibi, F. A., Alamri, N. O., & Aldhahri, A. S. (2024). Satisfaction and learning experience of students using online learning platforms for medical education. *BMC Medical Education*, 24(1), 1–13.
- Alharthi, K. S., & Alawneh, M. A. (2023). Digital platforms and the improvement of learning outcomes: Evidence extracted from meta-analysis. *Sustainability*, 15(2), 1305.
- Alowais, M., Rudd, G., Besa, V., Nazar, H., Shah, T., & Tolley, C. (2024). Digital literacy in undergraduate pharmacy education: A scoping review. *Journal of the American Medical Informatics Association*, 31(3), 732–745.
- Al-Rifai, F., Hassan, O., Al-Busaidi, M., & Hassan, S. (2024). Digital learning of clinical skills and its impact on medical students' academic performance: A systematic review. *BMC Medical Education*, 24(1), 1–14.

- Al-Sayed, T. A., Alawad, A. H., Altayeb, A. M., & Altamimi, A. S. (2025). The flipped classroom in medical education: A systematic review and meta-analysis. *Journal of Medical Internet Research*, 27(1), e60757.
- Amini, S., Salimi, M., & Khoyini, Z. (2020). Transforming medical education: The impact of flipped classrooms on the reading comprehension of Iranian ESP students. *International Journal of Multicultural and Multireligious Understanding*, 7(10), 1–12.
- Betancourt, J. M., Jha, K. K., & Lall, R. (2022). The flipped classroom in medical education: Engaging students to build competency. *Journal of Graduate Medical Education*, 14(1), 16–22.
- Handayani, F. (2021). Mini Nurse Lite, Medical Tool Quiz and More: Smartphone Apps as Interactive English Medical Materials for Nursing Students. *Elsya : Journal of English Language Studies*, 3(2), 106–116. <https://doi.org/10.31849/elsya.v3i2.6423>
- Handayani, F., Zaim, M., & Ardi, H. (2024). Understanding frontline needs: Perspective of Indonesian nurses on the English coursebook materials. *LEARN Journal: Language Education and Acquisition Research Network*, 17(2), 392–418.
- Hasan, N. H., Mahdi, H. A., & Al-Amri, S. M. (2021). Sustaining education with mobile learning for English for specific purposes (ESP): A systematic review (2012–2021). *Sustainability*, 13(17), 9768.
- Jashari, X., Fetaji, B., & Guetl, C. (2019). Effectiveness of digital education on communication skills among medical students: A systematic review and meta-analysis. *Journal of Medical Internet Research*, 21(8), e12967.
- Jarab, A. S., Al-Qerem, W., & Mukattash, T. L. (2023). Information technology in pharmacy practice: Barriers and utilization. *Journal of Applied Pharmaceutical Science*, 13(1), 150–155.
- Lee, C. Y., & Lee, S. W. H. (2021). Impact of the educational technology use in undergraduate pharmacy teaching and learning: A systematic review. *Pharmacy Education*, 21(3), 263–274.
- Mercanoglu, G., & Yüksel, G. (2022). Digital gaming in class: English medical terminology for pharmacy students. *Pharmacy Education*, 22(1), 376–382.
- Panda, D. S., Gamal, M., Zafar, A., Parambi, D. G. T., Senapati, A. K., Patro, S. K., Sahoo, P. K., & Bose, A. (2020). Effectiveness of online teaching in pharmacy education from teacher and student perspectives during the COVID-19 pandemic. *Pharmacy Education*, 20(2), 297–301.
- Popova, Y., Solodka, A., Ponomarova, Y., Popova, L., & Savchenko, V. (2023). The impact of digital technologies on the effectiveness of English language learning by medical students. *Amazonia Investiga*, 12(68), 241–251.

- Rosmayanti, V., Noni, N., & Patak, A. A. (2022). Students' acceptance of technology use in learning English for pharmacy. *International Journal of Language Education*, 6(3), 314–331.
- Rosmayanti, V., Patak, A. A., & Noni, N. (2023). Integrating technology into ESP instruction: Teaching English for pharmacy students. *The Journal of Asia TEFL*, 20(2), 475–484.
- Rosmayanti, V., Wahid, A., Mansur, M., Hardianti, & Asrifan, A. (2024). Teachers' views on the use of ICT in English pharmacy courses. *Klasikal: Journal of Education, Language Teaching and Science*, 6(3).
- Sangsrichan, N., Thanakong, K., & Yoodee, W. (2024). Using a mobile application to enhance English communication skills of paramedic students in the ESP classroom. *LEARN Journal: Language Education and Acquisition Research Network*, 17(1), 905–926.
- Susanta, I. P. A. E. (2024). The implementation of Edpuzzle in teaching English for pharmacists at ITEKES Bali. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, 4(3), 1445–1456.
- Syafiq, M., Al-Arif, H. E., & Diansyah, M. E. (2024). E-learning in medical students: A systematic review of evidence-based articles. *European Journal of Clinical and Medical Physics Research*, 9(1).